which constitutes a portion which accommodates an electron gun having a focus electrode and an anode electrode and has a second outer diameter of the neck portion,

the first outer diameter of the neck portion is set smaller than the second outer diameter of the neck portion,

the electron gun emits a single electron beam to the phosphor screen,

the focus electrode and the anode electrode are disposed within the second neck portion, and

a maximum operating voltage of the electron gun is set to equal to or more than 25 kV.

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4. (Amended) A projection tube according to claim 1, wherein the first outer diameter of the neck portion is set to equal to or less than 29.1 mm.

5. (Amended) A projection tube according to any one of preceding claims 1 ~~and~~ or 4, wherein the second outer diameter of the neck portion is set to equal to or more than 36.5 mm.

6. (Amended) A projection tube according to claim 1, wherein the first outer diameter of the neck portion is set to 29.1 mm and the second outer diameter of the neck portion is set to 36.5 mm.

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8. (Amended) A projection tube comprising a panel which forms a phosphor screen on an inner surface thereof, a funnel, a neck portion and a stem portion which seals the neck portion, wherein

the neck portion includes a first neck portion which constitutes a portion connected to the funnel portion and has a first outer diameter of the neck portion, and a second neck portion which constitutes a portion which accommodates an electron gun having a focus electrode and an anode electrode and has a second outer diameter of the neck portion,

the first outer diameter of the neck portion is set smaller than the second outer diameter of the neck portion,

the electron gun emits a single electron beam to the phosphor screen,